2020

Logan International Airport

A Guide to BIM & VDC on TAA Projects

Direct Tenant TAA Projects
Third Party Development Properties

Massachusetts Port Authority

Capital Programs & Environmental Affairs

Preface

Massport appreciates the investment made by tenants in its facilities, and is committed to doing everything possible to support the investment of our tenant partners in the built environment we share. Tenants are encouraged to establish ongoing communication with Massport staff during their projects' design and construction phases, to help ensure that project information complies with Massport's design and construction criteria and standards. This information supports Massport's goal to create digital information on its facilities and assets.

This addendum covers the Tenant Alteration Application (TAA) project deliverables with additional information concerning Building Information Modeling (BIM) tools and methods to develop project design and construction documentation. It does not conflict with the requirements as defined in the 2016 Guide to Tenant Construction.

1 Introduction to BIM/VDC Use and Resources

Massport is committed to implementing Building Information Modeling (BIM) and Virtual Design and Construction (VDC) processes on most projects throughout its facilities. BIM is a 3D model-based process that replaces 2D CAD for developing design and construction documentation. When used successfully, BIM achieves higher quality projects, better visualization with fewer errors, and standardized information that is more coordinated and reliable. The information created during a BIM project, can be re-purposed for operations and facility management. This information helps Massport and tenants better operate and manage our joint facilities, reducing costs for post construction turnover to Massport.

Most architects and engineers already use BIM, given the benefits to their practice. If you are reviewing 3D renderings, animations, and 3D construction views, then your designer is probably using BIM software.

For some TAA projects, Massport will require BIM and VDC use. A ***BIM/VDC Project Decision Matrix*** has been developed and included in this document to help you determine whether BIM is required, recommended, or unnecessary on your project.

If BIM is required on your TAA project, there is help from Massport through the Design Technologies Integration Group (DTIG) and the TAA representative for the project. The design team hired shall contact DTIG regarding project, BIM templates and submittal requirements prior to any official design submissions. Contact for DTIG can be found on the final page at the end of this guide.

1.1 The Massport Design Technology Integration Group (DTIG)

The DTIG is responsible for BIM, templates, submittal standards and related technology and information used for projects at Massport. This group is available to answer questions concerning BIM use for Massport projects.

1.1.1 Your Massport TAA contact will provide DTIG contact information.

Capital Programs Department Massachusetts Port Authority
One Harborside Drive, Suite 200S
East Boston, MA 02128 Telephone: (617) 561-1851

1.2 Massport BIM Guidelines for Vertical and Horizontal Construction.

Massport has developed BIM Guidelines to be used by architects and contractors on Massport projects. If you would like to learn more about Massport's BIM Guidelines, please visit the Massport Capital Improvements Important Documents page at:

http://www.massport.com/massport/business/capital-improvements/important-documents/

2 The TAA BIM/VDC Project Decision Matrix

Full TAA projects may require BIM use. Massport has developed a BIM/VDC Project Decision Matrix included herein which includes project types, definition, registration, TAA, deposit requirements, and BIM use.

Also to be considered are the two (2) main lease types that TAA projects are categorized under, which are Direct Leases and 3rd Party Leases. Included is a Project Decision Matrix for either type.

- Appendix 'A1' for Direct Tenant TAA Projects: BIM/VDC Project Decision Matrix and its associated BIMxP (Appendix 'A2' - BIM Execution Plan) template.
- Appendix 'B1' for Third Party Development Properties: BIM/VDC Project Decision Matrix and its associated BIMxP (Appendix 'B2' - BIM Execution Plan) template.

Other factors considered when determining if a project should be developed in BIM include:

- Internal projects of sufficient complexity as to impact building systems, specifically mechanical, plumbing, and electrical and lighting systems
- Visual impact of the space on the facility and surrounding spaces – commercial, food, and retail spaces conveying the Massport aesthetic goals for the traveler experience
- Projects which impact security and passenger flow
- Extensive rework of existing spaces – internal and external shell modifications

If there is a question concerning BIM and VDC use, it is recommended that you consult with the DTIG and your design team to determine BIM value and requirements for your review and submission process.

Project Decision Matrix: Appendix 'A1' – Direct Tenant TAA Projects

See: BIMxP Template - Appendix 'A2': Direct Tenant TAA Projects

BIM/VDC Project Decision Matrix - Appendix A1: Direct Tenant TAA Projects			2020
Massport reserves the right to modify the following guidelines as deemed necessary by project circumstances			
Type	**Description**	**BIM Requirement**	**Notes and Assumptions**
Building Alteration (Work Done to Existing Buildings)			
Exterior alterations to building	Roof replacement; new wall panels; new or replacement windows; canopies, awnings or other new building elements	Yes	BIM if there is significant change to the building exterior. BIM Uses: • Existing Conditions Model • New Building Elements
Interior alterations to building	Interior fit-outs which may include repartitioning, installation or renovation of MEP (mechanical, electrical, plumbing) systems, structural changes, finishes and furniture or other components.	Yes BIMxP Record Model	BIM for MEP - Specifically mechanical, plumbing, electrical and fire protection - to capture major building systems and connection points to the existing building systems.
Equipment and Systems			
Installation of new standalone systems	Electrical, mechanical, plumbing/gas, HVAC, telecommunications, security, fueling or other complete systems or individual components OR replacement of individual components of the above systems	Yes	BIM for complete system redesign and changes. No BIM for equipment replacement.
New Construction			
New Buildings	All Single or Multi-phased	Yes BIMxP Record Model	BIM for: • Architectural • Building Systems • Utilities and Connections
Horizontal, Civil			
All Horizontal and Site Utility Replacement	Parking lots/paving; site grading; sidewalks; site utilities; maritime-repairs to docks and piling; Aprons	Yes	Civil 3D and 3D utility information is required, and must be in State Plane Coordinates (NAD 83) and modeled to show an accurate "Z" coordinate for underground utilities and surface features.
Other			
Building demolition, total or partial	Any	No	
Temporary Structures	Including modular buildings, but not including construction trailers	No	
Signage	Ground-mounted identity signs; Building-mounted identity signs; wayfinding signs or sign systems (blade or flat-mounted, powered or not powered)	No	

Project Decision Matrix: Appendix 'B1' – Third Party Development Properties

See: BIMxP Template - Appendix 'B2': Third Party Development Properties

BIM/VDC Project Decision Matrix - Appendix B1: Third Party Development Properties			2020
Massport reserves the right to modify the following guidelines as deemed necessary by project circumstances			
Type	**Description**	**BIM Requirement**	**Notes and Assumptions**
Building Alteration (Work Done to Existing Buildings)			
Small Repairs and Replacements	Architectural and finish repair/replace	No	
Roof Repairs and Replacements	Roof work	No	
Exterior Alterations to Building	Wall panels; new windows locations; canopies, awnings or other new building elements	Yes	BIM if there is significant change to the building exterior. BIM Uses: • Existing Conditions Model • New Building Elements
Interior Fit outs	**Simple**: Interior fit-outs involving re-partitioning and minor MEP work in finished space; office renovations that do not significantly alter the base building structural elements.	No	BIM for MEP – Specifically
	Complex: Interior fit-outs in raw space or fit-outs that require new and/or extensive renovation of MEP (mechanical, electrical, plumbing) or changes to the building structure would require a full TAA.	Yes BIMxP Record Model	BIM for MEP - Specifically mechanical, plumbing, electrical and fire protection - to capture major building systems and connection points to the existing building systems.
Equipment and Systems			
New Installation or Significant Modifications	Electrical, mechanical, plumbing/gas, HVAC, telecommunications, fueling or other complete systems or individual components	Yes	BIM for complete system redesign and changes. No BIM for equipment replacement.
Replacement or Minor Modifications	Replacement of individual components of above systems, or components or systems with minimal impact to the facility	No	
New Construction			
New Buildings	All Single or Multi-phased	Yes BIMxP Record Model	BIM for: • Architectural • Building Systems • Utilities and Connections
Horizontal, Civil			
Parking lots/paving; site grading; sidewalks; site utilities; maritime-repairs to docks and piling	Parking lots/paving; site grading; sidewalks; site utilities; maritime-repairs to docks and piling; Aprons	Yes	Civil 3D and 3D utility information is required, and must be in State Plane Coordinates (NAD 83) and modeled to show an accurate "Z" coordinate for underground utilities and surface features.
Signs			
Identity	Ground-mounted identity signs; Building-mounted identity signs; wayfinding or other functional signs (blade or flat-mounted), powered signs	Yes	As Part of an associated BIM Project, otherwise No
Others	1) Wayfinding or other functional signs or sign systems; 2) New construction identity signs that are part of the base building review.	Yes	As Part of an associated BIM Project, otherwise No
Other			
Demolition, Total or Partial	Any	No	
Temporary Structures	Including modular buildings, but not including construction trailers	No	

Notes:

(1) Projects that do not require a TAA will be registered using the Project Registration Process protocol. Registered projects must provide information including applicant name, architect name, contractor name, start and end dates, and description of the work. Copies of all jurisdictional permits which are legally required for the project must be submitted to Massport for record throughout the course of the project, and evidence of final signoff from the jurisdictional authorities must be provided at completion of the project.

(2) Projects that require a TAA will submit project data on the standard Tenant Alteration Application (TAA) form and provide a deposit as noted above; plans proceed through normal TAA process, including the issuance of a Massport Permit for Tenant Alteration.

(3) Record Document Deposits are collected for certain projects in order to assure the submittal of as-built documentation at the close of the project. If your project requires a deposit, contact the Manager of Tenant Alterations at jrevill@massport.com to obtain the deposit form and directive.

3 BIM/VDC on Projects

Building Information Modeling (BIM) and Virtual Design and Construction (VDC) are processes allowing teams to work in a collaborative manner on a digital or virtual model of the project. To facilitate this collaboration, basic information is required and documented for team and Massport use. This information is documented utilizing industry standards and forms developed by Massport.

3.1 BIM Authoring Software

Massport's BIM Authoring tool is Autodesk Revit. Review the Massport resource page for Revit templates and the current version of Revit being used by Massport. Autodesk Civil 3D and AutoCAD are also used as the authoring tools for any site / civil and survey projects.

3.2 Massport Existing Conditions Documentation

Massport may provide existing documentation (Revit models, CAD files, PDF drawings) appropriate for the project location. This information shall be verified by the tenant prior to any design or construction.

3.3 Massport BIM Execution Plan

Massport's ***BIM Execution Plan*** (**BIMxP**) was developed to standardize project data requirements and reporting on BIM projects. There are two (2) BIMxP templates developed for TAA projects:

- Appendix 'A2' for Direct Tenant TAA Projects
- Appendix 'B2' for Third Party Development Properties

The documents are available on the Massport Capital Improvements Important Documents page of the website at:

http://www.massport.com/massport/business/capital-improvements/important-documents/

The spreadsheet contains:

- Project Information – Responsible Parties Abbreviations
- Record Model Documentation - identifies the responsible party/company (R/P) of a design element and the level of development (LOD) for that element, per the MPA LOD guidelines (See Section 4.0 for LOD definitions)

3.4 Record Models and Trade As-Built Deliverables

The Revit (.rvt) model is considered a deliverable on BIM projects. All linked and associated models and any other file types used in project creation must be submitted along with the central model, and must be clearly named according to the MPA BIM Guidelines. Also, if laser scanning has been performed, associated point clouds must be submitted in a registered format, preferably Autodesk ReCap.

3.5 Record Drawings

PDF of record drawings shall be submitted. Refer to section 5.1 in this guide for PDF submittal standards.

3.6 Equipment Information

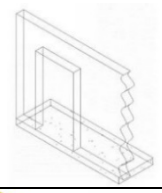
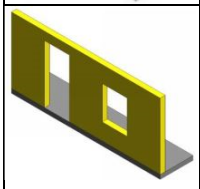
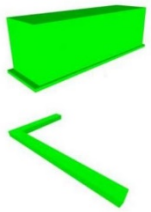
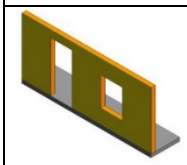
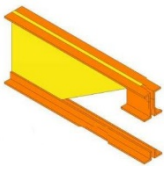
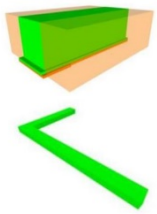
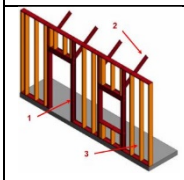
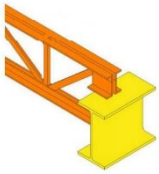
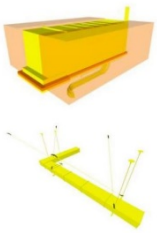
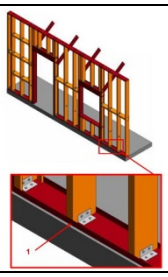
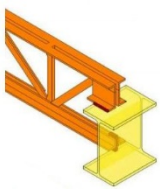
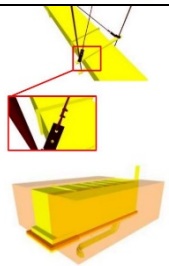
The following information is submitted for projects with new equipment for utilities, and major building systems

- Manufacturer of equipment
- Model and Serial Number
- Location - Actual room or location the asset resides

4 BIM Model and Drawing Standards

BIM uses a set of industry standards to identify the level of graphic and information development required on a project. This standard, developed through the BIMFORUM, is called Level of Development Specification Part I (LOD). A copy of the latest BIMFORUM LOD Specification is available on the BIMFORUM website: http://bimforum.org/lod/

FUNDAMENTAL LOD DEFINITIONS
BIMFORUM Revision: November 2019

Architectural	Structural	MEP/FP	
		No Model	**LOD 100** The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.
			**LOD 200** The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
			**LOD 300** The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.
			**LOD 350** The Model Element is graphically represented within the Model as a specific system, object, or assembly in terms of quantity, size, shape, location, orientation, and interfaces with other building systems. Non-graphic information may also be attached to the Model Element.
			**LOD 400** The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication, assembly, and installation information. Non-graphic information may also be attached to the Model Element.

5 Project Review Models

5.1 TAA Model and PDF Submittal Guidelines:

The electronic files will be reviewed to verify that all the files meet all the Massport TAA guidelines. All Design/Record drawings that are not in compliance with these standards will be returned and resubmitted by the Tenant.

- Design Phase Submittal - Revit models, and individual PDF sheet files in their latest format.
- Record Files Submittal - Revit models, and individual PDF sheet files in their latest format.
- All record drawings require both a signature and stamp.
- File naming format for Revit file submissions: XXXX_ARCH_RXX.rvt, XXXX_MEP_RXX.rvt, XXXX_STRUC_RXX.rvt, where XXXX is the TAA number, ARCH/MEP/STRUC etc. is the discipline, and RXX is the Revit version year. NOTE: This is for official submittals only. Initial (design) TAAs will not yet have the TAA number assigned. Therefore it is strongly urged that the design team obtain the official TAA number from the Tenant Alteration Manager in Capital Programs prior to file creation and/or official submittals to Capital Programs.
- All PDF files will be prepared at 300 DPI.
- All PDF submissions: PDF files of the construction documents / sheets within the model shall be submitted as individual files per sheet. PDF files must follow the MPA naming convention for internal archiving purposes and shall be named as follows: XXXX-A101.pdf, and orientated to landscape.

5.2 Initiating Projects with Massport

When initiating a project with Massport, the project team should obtain the required MPA Revit templates from the TAA Manager. BIM and related VDC technology is constantly changing and evolving. Be sure to always obtain the latest templates, families, and shared parameters at the start of each project from the MPA TAA Manager.

- Revit Version: When requesting the Revit templates, please specify the version of Revit being used. MPA currently runs the latest version along with two (2) previous versions to help with flexibility.
- Families: Along with the Revit Template files, there will also be MPA Revit families for standard symbols and sheets.
- Shared Parameters: Shared parameters will also be included with the template package.
- Legibility: Drawings must be clear and legible.

5.2.1 Site / Civil Project Submissions

Massport uses Autodesk Civil 3D for all site/civil and underground utility projects. The information taken from these submissions will be utilized for the MPA GIS program. To ensure proper submission of the site/civil work, the TAA Manager will supply the consultant with the MPA Site Civil base file containing the MPA GIS layering standards. These layering standards and geospatial location (NAD83) must be followed for incorporation into Massport's compiled utility base maps for our various campuses. Please contact the Massport Design Technologies Integration Group (DTIG) at DTIG@massport.com for additional information and standards.

5.4 As-Bid / Design BIM Deliverables

Final 100% Design BIM Submittal
The following submissions are to be delivered to the Authority via physical media:

- BIMxP
- As-Designed Revit Architectural Model – centralized
- As-Designed Revit MEP/FP and Structural models
- Navisworks Files and associated clash reports (if available)
- Individual PDF files of the Construction Documents
- 2D AutoCAD files, exported from Revit, of blank floor plans
- Civil 3D files of all site, civil, and underground utility drawings

5.5 Final Record BIM Deliverables

Final 100% Record BIM Submittal
The following submissions are to be delivered to the Authority via physical media:

- BIMxP
- Record Models shall be developed in accordance with the decision matrix type, (see Appendix A1 for Direct Tenant, Appendix B1 for Third Party) and shall match the category type on the appropriate BIMxP, (see Appendix A2 for Direct Tenant, Appendix B2 for Third Party) along with the required LOD
- Record As-Built point cloud files, registered, rotated and elevated (if available)
- Record Federated Navisworks Model (if available)
- Trade Contractor / Sub Contractor Native Files (if available)
- Individual PDF files of the Construction Documents. Refer to section 5.1 in this guide for PDF submittal standards and file naming.

Please contact MPA DTIG (Design Technologies Integration Group) for Revit and/or CAD templates by email: DTIG@massport.com

Direct Tenant TAA Projects Appendix A2

	Element Classification	Building Alteration (Work Done to Existing Buildings)		Equipment and Systems	New Construction	Horizontal, Civil	Other			Direct Tenant TAA Projects Appendix A2
	Element Name	Exterior Alterations	Interior Alterations to Building	Installation of new Standalone Systems	New Buildings	All Horizontal and Site Utility Replacement	Building Demolition, Total or Partial	Temporary Structures	Signage	Notes for LOD Requirements
Site/Civil	A									
	Site Improvements	Use Pull Down Menu for LOD.								Use MPA Civil 3D Template and Standards for Sitework - Provide "Z" Coordinate for Utilities
	Roadways	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Parking Lots	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Pedestrian Plazas and Walkways	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Airfields	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Athletic, Recreational, and Playfield Areas	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Site Development	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Landscaping	200	200	N/A	300	300	N/A	N/A	N/A	MPA Civil 3D Template File
	Liquid and Gas Site Utilities									
	Water Utilities	200	300	N/A	300	300	N/A	N/A	N/A	Interior Projects- Link to Utilities
	Sanitary Sewerage Utilities	200	300	N/A	300	300	N/A	N/A	N/A	Provide hook-up location to existing utility lines. Provide "z" coordinate for utilities. MPA Civil 3D template file
	Storm Drainage Utilities	200	300	N/A	300	300	N/A	N/A	N/A	
	Site Energy Distribution	200	300	N/A	300	300	N/A	N/A	N/A	
	Site Fuel Distribution	200	300	N/A	300	300	N/A	N/A	N/A	
	Liquid and Gas Site Utilities Supplementary Components	200	300	N/A	300	300	N/A	N/A	N/A	
	Electrical Site Improvements									
	Site Electric Distribution Systems	200	300	N/A	300	300	N/A	N/A	N/A	Equipment shall be identified
	Site Lighting	200	300	N/A	300	300	N/A	N/A	N/A	Equipment shall be identified
	Site Communications									
	Site Communications Systems	200	300	N/A	300	300	N/A	N/A	N/A	
	Miscellaneous Site Const									
	Tunnels	200	300	N/A	300	300	N/A	N/A	N/A	
	Subgrade Enclosures									
	Walls for Subgrade Enclosures	300	300	N/A	300	300	N/A	N/A	N/A	
	Slabs-on-Grade									
	Slabs	300	300	N/A	300	300	N/A	N/A	N/A	
Superstructure/Envelope	B									
	Superstructure									
	Floor Construction	300	300	N/A	300	N/A	N/A	N/A	N/A	Provide accurate geometry to the highest level created for project. For new construction Massport requires the exterior shell. Interior information on major equipment location and type required for rescue services.
	Roof Construction	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Structural Framing	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Structural Columns	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Exterior Vertical Enclosures									
	Exterior Walls	300	300	N/A	300	N/A	N/A	N/A	N/A	Provide accurate geometry to the highest level created for project. For new construction Massport requires the exterior shell. Interior information on major equipment location and type required for rescue services.
	Exterior Windows	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Exterior Doors	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Exterior Louvers	300	300	N/A	300	N/A	N/A	N/A	N/A	
Interiors	C **Internal to MPA Facilities**									
	Interior Construction									
	Interior Partitions	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Interior Windows	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Interior Doors	N/A	300	N/A	300	N/A	N/A	N/A	N/A	Secure/Not secure
	Interior Grilles	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Raised Floor Construction	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Suspended Ceiling Construction	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Interior Finishes									
	Wall Finishes	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Flooring	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Stair Finishes	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Ceiling Finishes	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Interior Finish Schedules	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
MEP/FP & Equipment	D									
	Conveying									
	Vertical Conveying Systems	N/A	300	N/A	300	N/A	N/A	N/A	N/A	Provide Shop Drawings
	Horizontal Conveying Systems	N/A	300	N/A	300	N/A	N/A	N/A	N/A	Provide Shop Drawings
	Material Handling	N/A	300	N/A	300	N/A	N/A	N/A	N/A	Provide Shop Drawings
	Plumbing									
	Domestic Water Distribution	N/A	300	N/A	350	N/A	N/A	N/A	N/A	Provide hook-up location to existing utility lines. Provide "z" coordinate for utilities. MPA AutoCAD template file or .rvt model file
	Sanitary Drainage	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	Building Support Plumbing	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	General Service Compressed Air	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	Process Support Plumbing	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	HVAC									
	Facility Fuel Systems	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	Heating Systems	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Cooling Systems	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Facility HVAC Distribution System	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Ventilation	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Special Purpose HVAC Systems	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Fire Protection									
	Fire Suppression	N/A	300	N/A	350	N/A	N/A	N/A	N/A	
	Fire Protection Specialties	N/A	350	N/A	350	N/A	N/A	N/A	N/A	
	Electrical									
	Facility Power Generation	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Electrical Service and Distribution	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	General Purpose Elec. Power	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Lighting	300	350	N/A	350	N/A	N/A	N/A	N/A	
	Misc. Electrical Systems	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
	Communications									
	Data Communications	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
	Voice Communications	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
	Audio-Video Communication	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
	Distributed Communications and Monitoring	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
	Communications Components	N/A	300	N/A	200	N/A	N/A	N/A	N/A	
	Elect Safety and Security									
	Access Control and Intrusion Detection	300	200	N/A	200	N/A	N/A	N/A	N/A	
	Electronic Surveillance	200	200	N/A	200	N/A	N/A	N/A	N/A	
	Detection and Alarm	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Electronic Monitoring and Control	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Electronic Safety and Security Supplementary Components	300	300	N/A	300	N/A	N/A	N/A	N/A	
	Integrated Automation									
	Integrated Automation Facility Controls	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	E									
	Equipment									
	Vehicle and Pedestrian Equipment	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Commercial Equipment	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Institutional Equipment	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
Furnishings	F									
	Furnishings									
	Fixed Furnishings	N/A	300	N/A	300	N/A	N/A	N/A	N/A	
	Movable Furnishings	N/A	200	N/A	200	N/A	N/A	N/A	N/A	
Specialties	G									
	Special Construction									
	Special Function Construction	200	300	N/A	300	N/A	N/A	N/A	N/A	
	Special Facility Components	200	300	N/A	300	N/A	N/A	N/A	N/A	
	Athletic and Recreational Special Construction	200	200	N/A	200	N/A	N/A	N/A	N/A	
	Special Instrumentation	200	200	N/A	200	N/A	N/A	N/A	N/A	

Third Party Development Properties Appendix B2

		Element Classification	Building Alteration (Work Done to Existing Buildings)				Equipment and Systems		New Construction	Horizontal, Civil	Signs		Other		Third Party Development Properties Appendix B2
		Element Name	Small Repairs and Replacements	Roof Repairs and Replacements	Exterior Alterations to Buildings	Interior Fitouts	New Installation or Significant Modifications	Replacement or Minor Modifications	New Buildings	Parking lots / Paving; Site grading; Sidewalks, Site Utilities; Maritime Repairs to Docks and Pilings	Identity	Others	Demolition; Total or Partial	Temporary Structures	Notes for LOD Requirements
Site/Civil	A														
	Site Improvements		Use Pull Down Menu for LOD.												Use MPA Civil 3D Template and Standards for Sitework - Provide "Z" Coordinate for Utilities
		Roadways	N/A	N/A	N/A	N/A	N/A	N/A	300	N/A	200	200	N/A	N/A	MPA Civil 3D Template File
		Parking Lots	N/A	N/A	N/A	N/A	N/A	N/A	300	N/A	200	200	N/A	N/A	MPA Civil 3D Template File
		Pedestrian Plazas and Walkways	N/A	N/A	N/A	N/A	N/A	N/A	300	N/A	200	200	N/A	N/A	MPA Civil 3D Template File
		Airfields	N/A	N/A	N/A	N/A	N/A	N/A	300	200	200	200	N/A	N/A	MPA Civil 3D Template File
		Athletic, Recreational, and Playfield Areas	N/A	N/A	N/A	N/A	N/A	N/A	300	200	200	200	N/A	N/A	MPA Civil 3D Template File
		Site Development	N/A	N/A	N/A	N/A	N/A	N/A	300	200	200	200	N/A	N/A	MPA Civil 3D Template File
		Landscaping	N/A	N/A	N/A	N/A	N/A	N/A	300	200	200	200	N/A	N/A	MPA Civil 3D Template File
	Liquid and Gas Site Utilities														
		Water Utilities	200	300	300	300	300	N/A	300	300	300	300	N/A	N/A	Interior Projects- Link to Utilities
		Sanitary Sewerage Utilities	200	300	300	300	300	N/A	300	300	300	300	N/A	N/A	Provide hook-up location to existing utility lines. Provide "z" coordinate for utilities. MPA Civil 3D template file
		Storm Drainage Utilities	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Site Energy Distribution	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Site Fuel Distribution	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Liquid and Gas Site Utilities Supplementary Components	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
	Electrical Site Improvements														
		Site Electric Distribution Systems	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	Equipment shall be identified
		Site Lighting	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	Equipment shall be identified
	Site Communications														
		Site Communications Systems	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
	Miscellaneous Site Const														
		Tunnels	200	N/A	300	300	300	N/A	300	300	300	300	N/A	N/A	
	Subgrade Enclosures														
		Walls for Subgrade Enclosures	300	300	300	300	300	N/A	300	300	300	300	N/A	N/A	
	Slabs-on-Grade														
		Slabs	300	300	300	300	300	N/A	300	300	300	300	N/A	N/A	
Superstructure/Envelope	B														
	Superstructure														
		Floor Construction	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	Provide accurate geometry to the highest level created for project. For new construction Massport requires the exterior shell. Interior information on major equipment location and type required for rescue services.
		Roof Construction	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Structural Framing	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Structural Columns	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
	Exterior Vertical Enclosures														
		Exterior Walls	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	Provide accurate geometry to the highest level created for project. For new construction Massport requires the exterior shell. Interior information on major equipment location and type required for rescue services.
		Exterior Windows	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Exterior Doors	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
		Exterior Louvers	300	200	300	300	300	N/A	300	300	300	300	N/A	N/A	
Interiors	C	**Internal to MPA Facilities**													
	Interior Construction														
		Interior Partitions	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Interior Windows	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Interior Doors	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	Secure/Not secure
		Interior Grilles	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Raised Floor Construction	N/A	200	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Suspended Ceiling Construction	N/A	200	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
	Interior Finishes														
		Wall Finishes	N/A	300	N/A	300	N/A	300	300	300	300	300	N/A	N/A	
		Flooring	N/A	300	N/A	300	N/A	300	300	300	300	300	N/A	N/A	
		Stair Finishes	N/A	300	N/A	300	N/A	300	300	300	300	300	N/A	N/A	
		Ceiling Finishes	N/A	300	N/A	300	N/A	300	300	300	300	300	N/A	N/A	
		Interior Finish Schedules	N/A	300	N/A	300	N/A	300	300	300	300	300	N/A	N/A	
MEP/FP & Equipment	D														
	Conveying														
		Vertical Conveying Systems	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	Provide Shop Drawings
		Horizontal Conveying Systems	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	Provide Shop Drawings
		Material Handling	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	Provide Shop Drawings
	Plumbing														
		Domestic Water Distribution	N/A	300	300	N/A	300	N/A	350	350	350	350	N/A	N/A	Provide hook-up location to existing utility lines. Provide "z" coordinate for utilities. MPA AutoCAD template file or .rvt model file
		Sanitary Drainage	N/A	300	300	N/A	300	N/A	350	350	350	350	N/A	N/A	
		Building Support Plumbing	N/A	300	300	N/A	300	N/A	350	350	350	350	N/A	N/A	
		General Service Compressed Air	N/A	300	300	N/A	300	N/A	350	350	350	350	N/A	N/A	
		Process Support Plumbing	N/A	300	300	N/A	300	N/A	350	350	350	350	N/A	N/A	
	HVAC														
		Facility Fuel Systems	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Heating Systems	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
		Cooling Systems	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
		Facility HVAC Distribution System	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
		Ventilation	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
		Special Purpose HVAC Systems	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
	Fire Protection														
		Fire Suppression	N/A	300	300	N/A	300	N/A	300	350	300	300	N/A	N/A	
		Fire Protection Specialties	N/A	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
	Electrical														
		Facility Power Generation	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Electrical Service and Distribution	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		General Purpose Elec. Power	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Lighting	300	350	350	N/A	350	N/A	350	350	350	350	N/A	N/A	
		Misc. Electrical Systems	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
	Communications														
		Data Communications	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Voice Communications	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Audio-Video Communication	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Distributed Communications and Monitoring	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Communications Components	N/A	300	300	N/A	200	N/A	300	300	300	300	N/A	N/A	
	Elect Safety and Security														
		Access Control and Intrusion Detection	300	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Electronic Surveillance	200	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
		Detection and Alarm	300	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Electronic Monitoring and Control	300	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Electronic Safety and Security Supplementary Components	300	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
	Integrated Automation														
		Integrated Automation Facility Controls	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
	E														
	Equipment														
		Vehicle and Pedestrian Equipment	N/A	N/A	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Commercial Equipment	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Institutional Equipment	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
Furnishings	F														
	Furnishings														
		Fixed Furnishings	N/A	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Movable Furnishings	N/A	200	200	N/A	200	N/A	200	200	200	200	N/A	N/A	
Specialties	G														
	Special Construction														
		Special Function Construction	200	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Special Facility Components	200	300	300	N/A	300	N/A	300	300	300	300	N/A	N/A	
		Athletic and Recreational Special Construction	200	N/A	200	N/A	200	N/A	300	300	300	300	N/A	N/A	
		Special Instrumentation	200	200	200	N/A	200	N/A	300	300	300	300	N/A	N/A	